CLAIMS

What is claimed is:

1. A method of controlling the dampening of a printing plate of a lithographic printing press, comprising:

A. Adjustably dampening (6) a printing plate (24) at a zone (Z1) across the width of said plate;

B. Printing an ink (100) on a substrate (12) with said plate;

C. Measuring (407), at a measurement location (56), densities of a multiplicity of tones (96, 98) of the ink printed on the substrate at the zone;

D. Calculating (409), from the multiplicity of densities, a dampener feed error at the zone;

E. Based on the dampener feed error, adjusting a dampener feed rate (451) at the zone.

2. The method of claim 1, where adjustment of the dampener feed rate is performed at a multiplicity of zones.

3. The method of claim 1, where the densities are measured within a colorbar (86) printed on paper.

4. The method of claim 1, where the densities are measured within a printed image (154).

5. The method of claim 1, where dampening is by a noncontact system (6).

6. The method of claim 5, where the adjustment of dampener feed is by pulse-width modulation of a valve (14) controlling the spray (2) of a spray head (4).

7. The method of claim 1, where calculation of the dampener feed error, comprises comparing the zone's solid ink density to the zone's partial-tone density (409).

8. The method of claim 7, where calculation of the dampener feed error, additionally comprises measurement of the density of an area of the substrate whose corresponding plate area (120, 128) is entirely hydrophilic (401).

9. The method of claim 7, where calculation of the dampener feed error, additionally comprises calculation of the swim of the measurements.

10. The method of claim 1, additionally comprising the step of:

F. Delaying until the print resulting from step E has reached the measurement location (453), then repeating step A.

11. The method of claim 10, where steps A-F are performed for a plurality of colors of ink.

12. An apparatus for controlling the dampening of a printing plate of a lithographic printing press, comprising:

A. A printing plate (24) which prints an ink (100) on a substrate (12);

B. A plate dampener (6) which adjustably dampens the printing plate at a zone (Z1) across the width of said plate;

C1. A control system (32) which measures (407) densities of a multiplicity of tones (96, 98) of the ink printed on the substrate at the zone; and

C2. calculates, from the multiplicity of densities, a dampener feed error (409) at the zone; and

C3. adjusts, based on the dampener feed error, the dampener feed rate (451) at the zone.

13. The apparatus of claim 12, where adjustment is performed at a multiplicity of zones (Z1-Z8).

14. The apparatus of claim 12, where the densities are measured within a colorbar (86) on paper.

15. The apparatus of claim 12, where the densities are measured within a printed image (154).

16. The apparatus of claim 12, additionally comprising a spray head(4) fed by a valve (14) controlling the dampener feed rate by pulse-width modulation.

17. The apparatus of claim 12, where calculation of the dampener feed error, comprises comparing the zone's solid ink density to the zone's partial-tone density (409).

18. The apparatus of claim 17, where calculation of the dampener feed error, additionally comprises measurement of the density of an area of the substrate whose corresponding plate area (120) is entirely hydrophilic (401).

19. The apparatus of claim 12, where calculation of the dampener feed error is performed for each of the ink colors black, cyan, magenta, and yellow.

20. An apparatus for controlling the dampening of a printing plate of a lithographic printing press, comprising:

A. Printing means (24) which prints an ink (100) on a substrate (12);

B. Plate dampener means (6) which adjustably dampens the printing plate at a multiplicity of zones (Z1-Z8) across the width of said plate;

C. Measurement means (36) which measures (407) the densities of a multiplicity of tones (96, 98) of the ink printed on the substrate at each of the multiplicity of zones;

D. Computing means (32) which calculates, from the multiplicity of densities, a dampener feed error (409) at each of the multiplicity of zones, and

E. adjusts, based on the dampener feed error, a dampener feed rate (451) at each of the multiplicity of zones.